

REMARKS

Claims 1-12 are pending in this application. By this Amendment, claims 1 and 6 are amended to correct antecedence and claims 11 and 12 are added to further distinguish the claimed subject matter from the cited references. Figure 4 is amended to address the drawing objection, as discussed below.

No new matter is added by this Amendment. Support for new claims 11 and 12 can be found on page 2, paragraph 5 of the specification.

I. Allowable Subject Matter

Applicants note with appreciation that claims 3, 7 and 8 are allowable.

II. Drawing Objections

The drawings were objected to because in Figure 4 element 22 was allegedly improperly crosshatched. Accordingly, Applicants herewith submit a replacement drawing sheet properly showing the material in Figure 4.

III. Rejections Under 35 U.S.C. §102(b)

A. Tanaka

Claims 1, 2, 4, 6, 9 and 10 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,004,530 ("Tanaka"). This rejection is respectfully traversed.

According to the Patent Office, Tanaka teaches a method and apparatus for electric discharge machining using a hollow electrode that supplies dielectric fluid and a discrete backing member positioned to abut the work piece. The Patent Office further alleges that the flushing agent is not disrupted. Applicants strenuously disagree with these allegations.

In particular, the Patent Office is incorrect in its allegation that the flushing agent is not disrupted. When the bottom portion of the work piece is opened partially with progress of machining, the machining liquid pressure in the pipe drops abruptly. See column 3, lines 3-5 of Tanaka. Therefore, when the electrode partially penetrates the work piece (see column 4,

lines 5-7 of Tanaka), the flushing agent is obviously disrupted because of abrupt drop in liquid pressure. In other words, without fluid disruption, there could be no pressure drop.

Thus, Applicants submit that Tanaka does not teach or suggest that at break through of the electrode through the work piece, the path of the flushing agent is not disrupted as recited in claims 1 and 6.

Furthermore, due to the disruption of the flushing agent in Tanaka, the work piece made by the method of claim 1 differs from the work piece produced by the method of Tanaka. When a flushing agent is disrupted, the quality of the passage's surface finish and dimensions is greatly reduced. See page 1, lines 22-23 of the present specification.

As a result, the work piece taught by Tanaka will have inferior surface finish and dimensions than the work piece produced according to the method of claim 1. A malformed passage could have detrimental effects where passages are employed in components to supply specific flow rates or fluid with specific velocity. See page 1, lines 23-25 of the specification. Thus, the superior surface finish and dimensions possessed by the work piece of claims 4, 9 and 10 is not taught or suggested by Tanaka.

Furthermore, Tanaka does not teach or suggest that the discrete backing member is positioned to span the entire breakthrough region on the face of the work piece through which the electrode exits as recited in new claims 11 and 12. Tanaka teaches a machining table having an aperture. See column 2, lines 43 of Tanaka. Thus, Tanaka does not teach or suggest that discrete backing member spans the exit surface of the work piece. Thus, Applicants submit that claims 11 and 12 are allowable.

For the foregoing reasons, Applicants submit that claims 1, 2, 4, 6, 9 and 10-12 are patentable over Tanaka. Thus, reconsideration and withdrawal of the rejection are respectfully requested.

B. GB '280

Claim 5 was rejected under 35 U.S.C. §102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. §103(a) as allegedly obvious over GB 2,254,280 ("GB '280"). This rejection is respectfully traversed.

The Patent Office alleges that GB '280 discloses a substantially identical work piece to the work piece recited in claim 5. Applicants respectfully disagree. In particular, GB '280 does not teach or suggest a flushing agent or a flow aid made by the method recited in claim 1. Because of this, the debris produced by the machining is not removed in GB '280. As a consequence, the quality of the surface finish and the dimensions of the passage will be adversely affected.

As explained above, the surface finish and dimensions of the passage are important where the passages are employed to supply specific flow rates or fluid with a specific velocity profile. Hence, similar to Tanaka, the superior surface finish and dimensions possessed by the work piece of claim 5 is not taught or suggested by GB '280.

For the foregoing reasons, Applicants submit that claim 5 is allowable over GB '280. Thus, reconsideration and withdrawal of the rejection are respectfully requested.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-12 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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Amendments to the Drawings:

The attached replacement drawing sheet makes changes to Fig. 4 and replaces the original sheet with Figs. 3 and 4.

Attachment: Replacement Sheet